

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings of the claims in the application.

1. **(Previously presented)** An isolated nucleic acid molecule that encodes a protein comprising at least one epitope of membrane IgE and at least one nonIgE helper T cell epitope, and being free of epitopes of serum IgE, wherein said epitope of membrane IgE and said nonIgE helper T cell epitope are fused by a proteolytic cleavage sequence.
2. **(Previously presented)** The nucleic acid molecule of claim 1 wherein said protein comprises membrane IgE or fragment thereof.
3. **(Previously presented)** The nucleic acid molecule of claim 2 wherein said protein comprises membrane IgE.
4. **(Canceled)**
5. **(Previously presented)** The nucleic acid molecule of claim 1 wherein the coding sequence encoding the at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.
6. **(Previously presented)** The nucleic acid molecule of claim 1 wherein said nucleic acid molecule is a plasmid.
7. **(Previously presented)** The nucleic acid molecule of claim 1 wherein said nucleic acid molecule is incorporated in a viral vector or a bacterial cell.
8. **(Previously presented)** A vaccine composition comprising a nucleic acid molecule that encodes a protein comprising an IgE leader sequence and at least one epitope of membrane

IgE and being free of epitopes of serum IgE, and a pharmaceutically acceptable carrier or diluent.

9-21 **(Canceled)**

22. **(Previously presented)** A host cell comprising an isolated nucleic acid molecule that encodes a protein comprising at least one epitope of membrane IgE and at least one nonIgE helper T cell epitope, and being free of epitopes of serum IgE, wherein said epitope of membrane IgE and said nonIgE helper T cell epitope are fused by a proteolytic cleavage sequence.

23 **(Previously presented)** The host cell of claim 22 wherein said protein comprises membrane IgE or fragment thereof.

24 **(Previously presented)** The host cell of claim 22 wherein said protein comprises membrane IgE.

25. **(Canceled)**

26. **(Previously presented)** The host cell of claim 22 wherein the coding sequence encoding the at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.

27. **(Previously presented)** The host cell of claim 22 wherein said nucleic acid molecule is a plasmid.

28 **(Previously presented)** A method of producing a protein comprising at least one membrane IgE and at least one non-IGE helper T cell epitope and being free of epitopes of serum IgE, wherein said epitope of membrane IgE and said nonIgE helper T cell epitope are fused by a proteolytic cleavage sequence comprising culturing a host cell of claim 22 and isolating said protein expressed thereby.

29. **(Previously presented)** The method of claim 28, wherein the protein is isolated using an antibody that specifically binds to said protein.

30-31. **(Canceled)**

32. **(Previously presented)** The vaccine of claim 8 wherein said protein comprises membrane IgE or fragment thereof.

33. **(Previously presented)** The vaccine of claim 8 wherein said protein comprises membrane IgE.

34. **(Previously presented)** The vaccine of claim 8 further comprising coding sequence encoding at least one non-IgE helper T cell epitope.

35. **(Previously presented)** The vaccine of claim 34 wherein the coding sequence encoding the at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.

36. **(Previously presented)** The vaccine of claim 8 wherein said nucleic acid molecule is a plasmid.

37. **(Previously presented)** The vaccine of claim 8 wherein said nucleic acid molecule is incorporated in a viral vector or a bacterial cell.

38-49. **(Canceled)**

50. **(Previously presented)** The isolated nucleic acid molecule of claim 1, further comprising coding sequence encoding an IgE leader sequence.

51. **(Previously presented)** An isolated nucleic acid molecule that encodes a protein comprising an IgE leader sequence and at least one epitope of membrane IgE and being free of epitopes of serum IgE.
52. **(Previously presented)** The isolated nucleic acid molecule of claim 51, further comprising coding sequence encoding at least one nonIgE helper T cell epitope.
53. **(Previously presented)** The isolated nucleic acid molecule of claim 51, wherein said protein comprises membrane IgE or fragment thereof.
54. **(Previously presented w)** The nucleic acid molecule of claim 54, wherein said protein comprises membrane IgE.
55. **(Previously presented)** The nucleic acid molecule of claim 52, wherein the coding sequence encoding the at least one nonIgE helper T cell epitope encodes tetanus toxoid Th epitope.
56. **(Previously presented)** The nucleic acid molecule of claim 51, wherein said nucleic acid molecule is a plasmid.
57. **(Previously presented)** The nucleic acid molecule of claim 51, wherein said nucleic acid molecule is incorporated in a viral vector a bacterial cell.
58. **(Previously presented)** The vaccine composition of claim 34, wherein said at least one epitope of membrane IgE and said at least one non-IgE helper T cell epitope are fused by a proteolytic cleavage sequence.
59. **(Previously presented)** A vaccine composition comprising a nucleic acid molecule that encodes a protein comprising at least one epitope of membrane IgE and at least one non-IgE helper T cell epitope, being free of epitopes of serum IgE, and a pharmaceutically acceptable

carrier or diluent, wherein said at least one epitope of membrane IgE and said at least one non-IgE helper T cell epitope are fused by a proteolytic cleavage sequence.

60. **(Previously presented)** The vaccine composition of claim 59, wherein said protein comprises membrane IgE or fragment thereof.

61. **(Previously presented)** The vaccine composition of claim 59, wherein said protein comprises membrane IgE.

62. **(Previously presented)** The vaccine composition of claim 59, wherein the coding sequence encoding the at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.

63. **(Previously presented)** The vaccine composition of claim 59, wherein said nucleic acid molecule is a plasmid.

64. **(Previously presented)** The vaccine composition of claim 59, wherein said nucleic acid molecule is incorporated in a viral vector or a bacterial cell.

65. **(Previously presented)** The host cell of claim 22, wherein said nucleic acid molecule further comprises a coding sequence encoding an IgE leader sequence.

66. **(Previously presented)** A host cell comprising an isolated nucleic acid molecule that encodes a protein comprising an IgE leader sequence and at least one epitope of membrane IgE, and being free of epitopes of serum IgE.

67. **(Previously presented)** The host cell of claim 66, wherein said nucleic acid molecule further comprising coding sequence that encodes a protein comprising at least one nonIgE helper T cell epitope.

68. **(Previously presented)** The host cell of claim 66, wherein said protein comprises membrane IgE or fragment thereof.
69. **(Previously presented)** The host cell of claim 66, wherein said protein comprises membrane IgE.
70. **(Previously presented)** The host cell of claim 67, wherein the coding sequence encoding the at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.
71. **(Previously presented)** The host cell of claim 66, wherein said nucleic acid molecule is a plasmid.
72. **(Previously presented)** A method of producing a protein comprising an IgE leader sequence and at least one membrane IgE epitope and being free of epitopes of serum IgE comprising culturing a host cell of claim 66 and isolating said protein expressed thereby.
73. **(Previously presented)** The method of claim 72, wherein the protein is isolated using an antibody that specifically binds to said protein.